

2016 SBO/SBEAP NSG TECHNICAL SUBCOMMITTEE

GREENEARTH CLEANING



20th December 2016

Who Is GreenEarth ?



R&D commitment & manufacturing prowess



Pioneer in detergency with silicones; outstanding consumer marketing



1800+ Global Affiliates

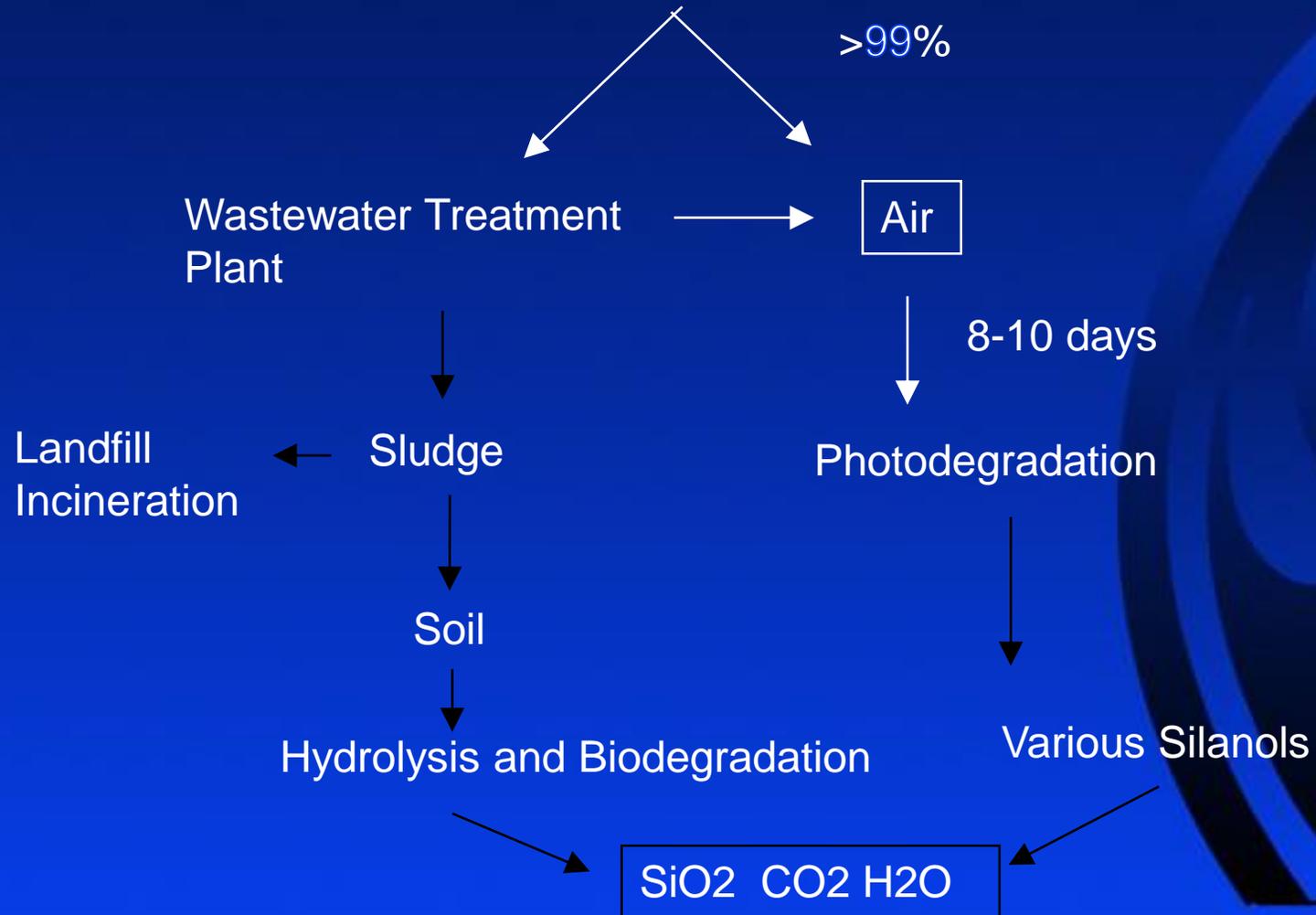
Physical Characteristics

“Pure D5 Cyclic Silicone”

U.S. VOC Classification	Non-VOC
Flash Point	77.7°C (170°F)
Physical Form	Liquid
Color	Colorless
Odor	Odorless
Specific Gravity @ 25°C	0.950
Viscosity @ 25°C (77°F)	4.0 CST
Freezing Point	-40°C (-40°F)
Boiling Point	210°C (410°F)
Refractive Index, 25°C (77°F)	1.395
Lower Flammability Index	0.70000 vol. % in air
Vapor Pressure @ 25°C (74°F)	0.1482
Surface Tension	17.42 dynes/cm @ 25°C

Environmental Fate

Antiperspirants, Skin Care, Other Personal Care | D5 Production



U.S. Regulatory Status

- Non-VOC (specifically exempted under US EPA air regulations - degrades in the atmosphere)
- No exposure guidelines set by OSHA – manufacturers use limits of 10ppm
- Listed as SNAP (Significant New Alternatives Policy) by EPA
- RCRA, CERCLA non-regulated
- Not listed under California Prop. 65
- Pure compound not regulated, contaminants from dry cleaning process may trigger regulation

Complete System

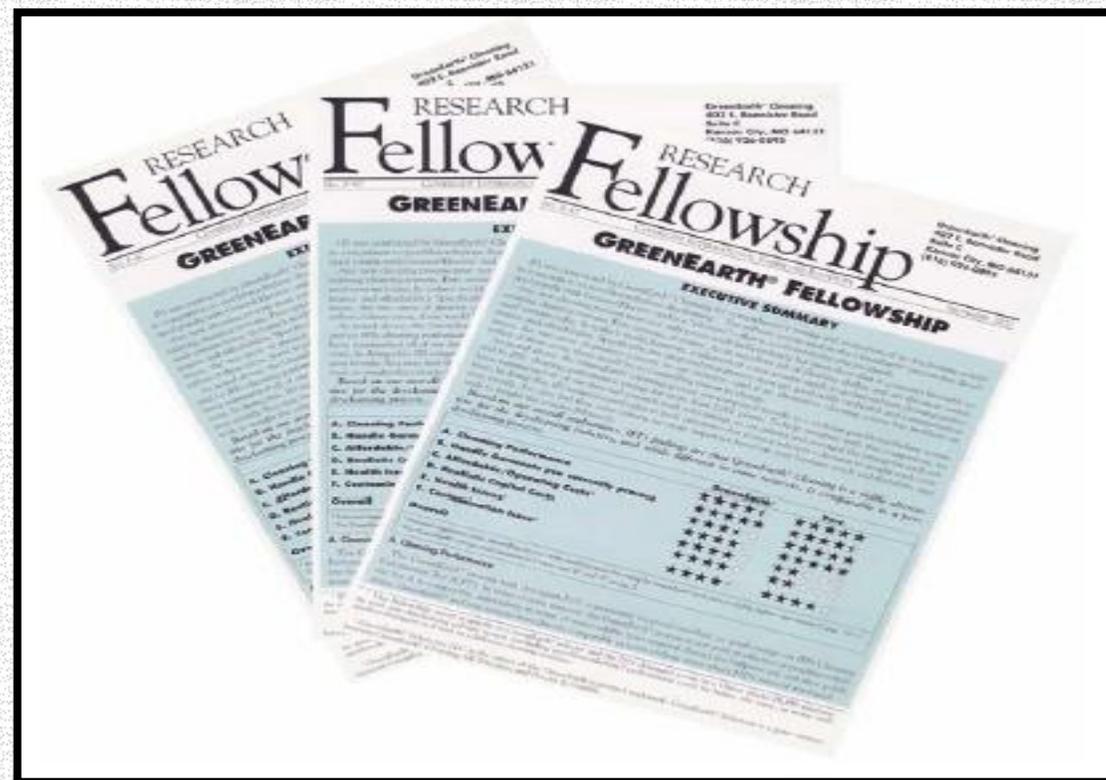


IFI Fellowship Report



IFI Report:

Only solvent to do a full IFI Fellowship.

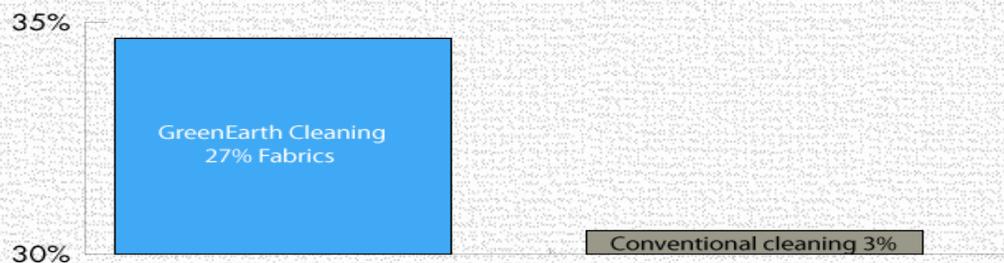




vs. Conventional

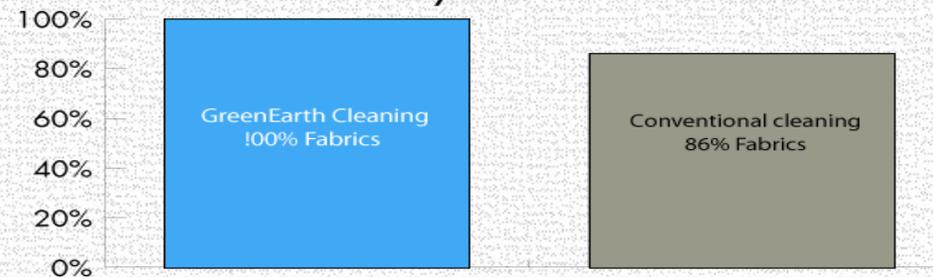
GreenEarth dry cleaning vs. Conventional dry cleaning*

Keeps Colors Brighter*



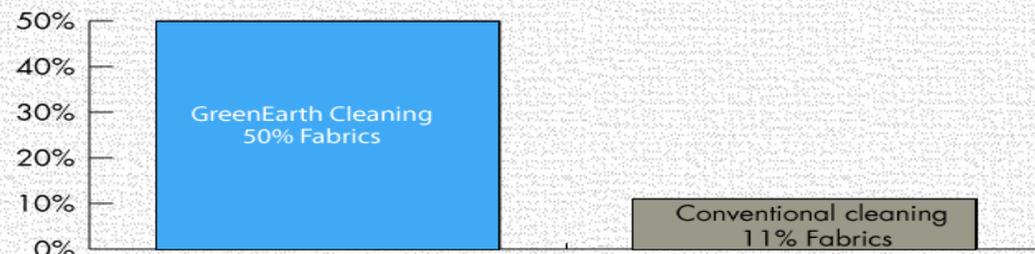
*Higher color retention score ($\geq .2$ on 5 point AATCC shade change scale) out of 29 fabrics.

Won't bleed dyes*



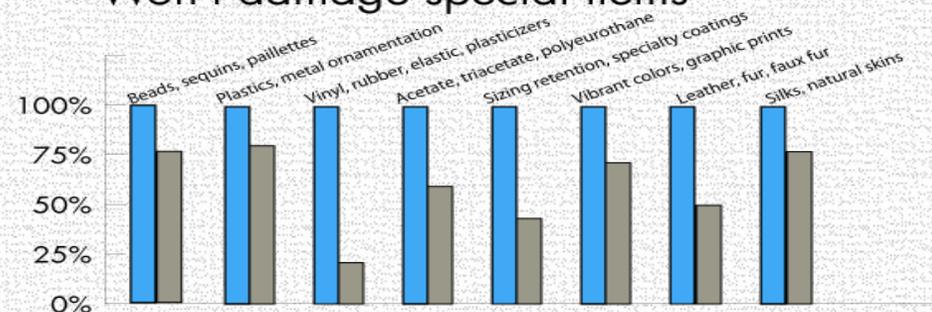
*Above minimum standard (≥ 4 on 5 point AATCC staining scale) out of 29 fabrics.

Keeps Shape Better*



*Better shape retention ($\geq .3\%$ less shrinkage in width and/or length vs. 2% maximum, ASTM dimensional change) out of 26 fabrics

Won't damage special items

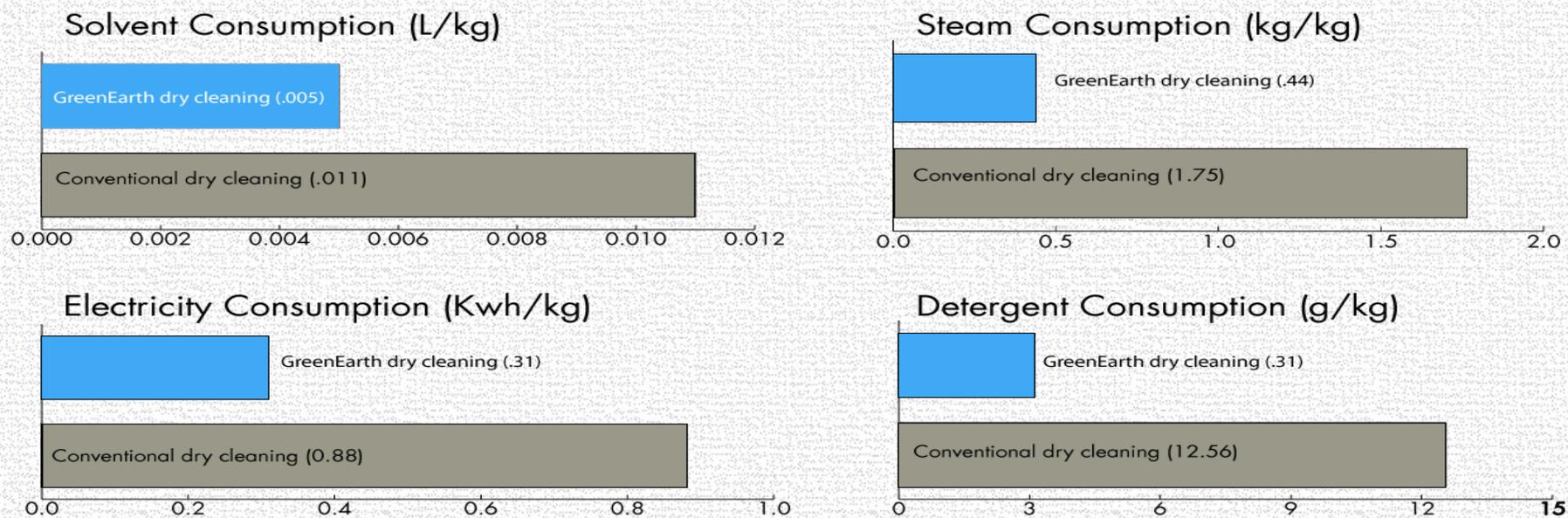


sources: International Fabricare Institute Fellowship Report, 2002 P&G Tuxedo Testing 2005, Kufner Textiles 2012, GE Labs 2012



Utility Conservation

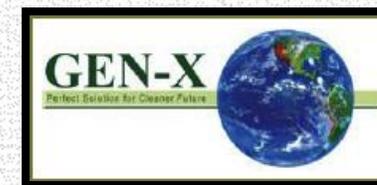
GreenEarth dry cleaning vs. Conventional dry cleaning*



*Perchloroethylene, or perc (also known as Tetrachloroethylene, or TCE); used by more than 70% of dry cleaners in the U.S.

Hydrocarbon & Hydrocarbon Blends

- Exxon DF 2000
- K-Tex (blend)
- Intense (blend)
- Gen X (blend)



Evaluation of Occupational Exposures at Drycleaning Shops Using SolvonK4 and DF-2000

Diana Ceballos, PhD, MS, CIH¹

Jennifer Roberts¹

Stephen Whittaker, PhD²

Eun Gyung Lee, PhD, CIH¹

Wei Gong, MS¹



HE Health Hazard
Evaluation Program

¹National Institute for Occupational Safety and Health

²Local Hazardous Waste Management Program, Public Health—Seattle & King County

Report No. 2012-0084-3227

January 2015



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health



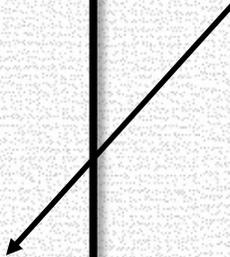


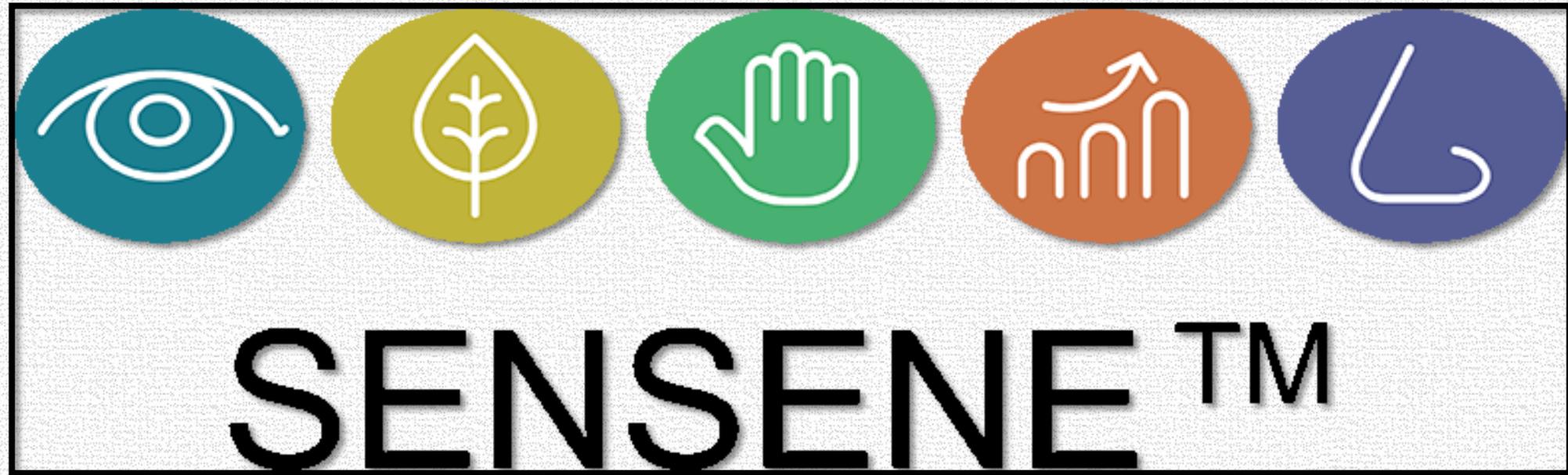
Final Report

**Evaluation of Solvon K4™
in an Acute Fish
Toxicity Test**

Stephen G. Whittaker, PhD
Local Hazardous Waste Management Program in King County
Research Services Team

Based on this....Solvon K4 that requires disposal would designate as dangerous waste.







Dry cleaning conversions: How Kimco is helping dry cleaners replace perc with environmentally safe alternatives

Posted by  Scott Gerber

on April 24, 2012

Many dry cleaners are at a turning point in their businesses, and ways to help them round the corner. Dry cleaners are under increasing pressure to reduce their use of perchloroethylene. Known as "perc" for short, the chemical has been used by nearly all dry cleaners since the 1930s.

But perc has been classified by the EPA as a "likely human carcinogen" if inhaled or consumed. This draws a direct line to dry cleaners, because vapors from their establishments can contaminate the soil, groundwater, and air. This can impact the shop environment for employees and customers. In February, the EPA concluded that perc can cause neurological and other health problems in addition to cancer.

It's doubtful any dry cleaner isn't familiar with the major regulatory changes over the past several years to reduce harmful emissions from dry cleaning. By 2015, dry cleaners located in residential buildings must stop using perc because of new EPA regulations. And the California Air Resources Board is phasing out all perc dry cleaning statewide by 2023.

As a result, many dry cleaners have begun transitioning to non-toxic, environmentally safe

1. The GreenEarth Cleaning method. GreenEarth Cleaning is used by over 1,500 dry cleaners worldwide, and is growing rapidly. The GreenEarth method uses liquid silicone — which is essentially liquefied sand — to carry detergent to garments to remove dirt and oil. Liquid silicone is odorless, colorless, and doesn't react with fabric fibers. This lets it clean without abrasion, so garments stay smooth and don't shrink. When liquid silicone is released into the environment, it breaks down into sand, water, and carbon dioxide. GreenEarth has an affiliate program, so Kimco dry cleaners can either license GreenEarth's technology to use in their business, or open a Tide Dry Cleaners franchise location. Tide Dry Cleaners is a franchise that uses GreenEarth's technology for all dry cleaning, and is an approved Kimco franchise. More information about GreenEarth and licensing its technology can be found on its website.

Lease Language

(I) <u>Tax Rent:</u>	As provided in Article 3.
(J) <u>Common Area Rent:</u>	As provided in Article 4.
(K) <u>Percentage Rent Rate:</u>	Six Percent (6 00 %) (see Article 5).
(L) <u>Security Deposit:</u>	Tenant's predecessor-in-interest and an affiliate of Landlord are the Landlord and Tenant under another lease dated April 24, 2001, as amended and modified, for the [REDACTED] owned by such affiliate of Landlord and located in [REDACTED]. The Security Deposit under such other lease in the amount of Seven Thousand Thirty-Seven and 33/100ths Dollars (\$7,037.33) will be transferred to Tenant's Security Deposit under this Lease (see Article 6).
(M) <u>Permitted Use:</u>	<p>The operation of a dry cleaning facility employing the "Green Earth" cleaning system using a single purpose machine specifically designed for, and approved by, GreenEarth (dual or multi-purpose machines which can accept other cleaning solvents are prohibited). Simultaneously with Tenant's execution of this Lease, Tenant shall provide Landlord with a copy of its GreenEarth affiliate license. Tenant shall be prohibited from using the Leased Premises for any other use or purpose. Tenant is strictly prohibited from performing any other on-premises dry cleaning services ("spot cleaning" shall similarly be prohibited except with the aforementioned detergents) or using or storing any other dry cleaning chemicals at the Leased Premises including, but not limited to, perchloroethylene or any other chlorinated solvents, petroleum or hydrocarbon based solvents, or any hazardous or regulated substances, or any machinery or equipment used in connection therewith. Additionally, Tenant is prohibited from bringing onto the Leased Premises any items which were cleaned off-site using perchloroethylene/TCE. In the event Landlord determines that Tenant has violated any of the foregoing prohibitions, then such violation shall be deemed an incurable default, entitling Landlord, in addition to all other remedies at law or in equity, to terminate this Lease on five (5) days written notice to Tenant.</p> <p>Within thirty (30) days after the commencement of each Lease Year, Tenant shall submit to Landlord's property manager Daniel Perez Nunez, at the following address: HIGHLANDS RANCH II, LLC, c/o Kimco Realty Corporation, 4237 S. Buckley Road, Aurora, Colorado 80013, a copy of Tenant's annual certification from GreenEarth Cleaning, LLC stating that Tenant is in good standing in the GreenEarth affiliate program, its license is in full force and effect, and Tenant is current in the payment of all license fees</p>

The operation of a dry cleaning facility employing the "Green Earth" cleaning system using a single purpose machine specifically designed for, and approved by, GreenEarth (dual or multi-purpose machines which can accept other cleaning solvents are prohibited). Simultaneously with Tenant's execution of this Lease, Tenant shall provide Landlord with a copy of its GreenEarth affiliate license. Tenant shall be prohibited from using the Leased Premises for any other use or purpose. Tenant is strictly prohibited from performing any other on-premises dry cleaning services ("spot cleaning" shall similarly be prohibited except with the aforementioned detergents) or using or storing any other dry cleaning chemicals at the Leased Premises including, but not limited to, perchloroethylene or any other chlorinated solvents, petroleum or hydrocarbon based solvents, or any hazardous or regulated substances, or any machinery or equipment used in connection therewith. Additionally, Tenant is prohibited from bringing onto the Leased Premises any items which were cleaned off-site using perchloroethylene/TCE. In the event Landlord determines that Tenant has violated any of the




GREENEARTH[®]
 CLEANING

For more information
 Contact Tim Maxwell
 U.S. (816) 926-0895

Silicone added to international care labeling standard
GreenEarth[®] silicone is now a recognized option for garment care

KANSAS CITY, MO - It has been nearly twenty years since a new solvent has been added to the world's care labeling standards. But in June it became official. Silicone is now an official recommendation for the cleaning of textile products according to ASTM D3136, Standard Terminology Relating to Care Labeling for Apparel, Textiles, Home Furnishing and Leather Products.

The ruling comes after GreenEarth Cleaning, a voting member of ASTM Committee D13 on Textiles, proposed amendments to the care labeling standards with the goal of improving professional garment care. This ruling makes GreenEarth silicone the first new dry cleaning solvent specifically referenced for care labeling by ASTM International since fluorocarbon in 1996.

Formerly known as the American Society for Testing and Materials, ASTM International is one of the world's largest development and delivery systems of standards and related products and services. Today, some 12,000 ASTM standards are used around the world to improve product quality, enhance safety, facility trade, and build consumer confidence.

ASTM's new definition of dry cleaning is now "in the care of textile products, a cleaning process using solvents such as perchloroethylene, a petroleum, or a silicone". The phasing out of Perc has caused a strong demand for alternative solvents. Silicone is now a recognized alternative on a worldwide basis.

"We believe that the inclusion of the silicone option by ASTM will assist garment manufacturers to address the increasing regulation of perc and hydrocarbons in the dry cleaning industry. GreenEarth's silicone process provides an alternative that is gentler for the garments and the planet," said Tim Maxwell, President of GreenEarth Cleaning. "We believe our alternative is good for everybody."

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The name GreenEarth and the GreenEarth logo are registered service marks of GreenEarth Cleaning, LLC. Two of the world's largest companies, General Electric and Procter & Gamble, are Founding Members of GreenEarth Cleaning, LLC. To learn more, visit www.greenearthcleaning.com.

816.926.0895 Fax: 816.926.0754 Toll Free: 877.926.0895 • 51 West 135th Street, Kansas City, MO 64145 • www.greenearthcleaning.com

"Silicone is now an official recommendation for the cleaning of textile products according to ASTM D3136, Standard Terminology Relating to Care Labeling for Apparel, Textiles, Home Furnishing and Leather Products."

"in the care of textile products, a cleaning process using solvents such as perchloroethylene, a petroleum, or a silicone".

Guangzhou, China



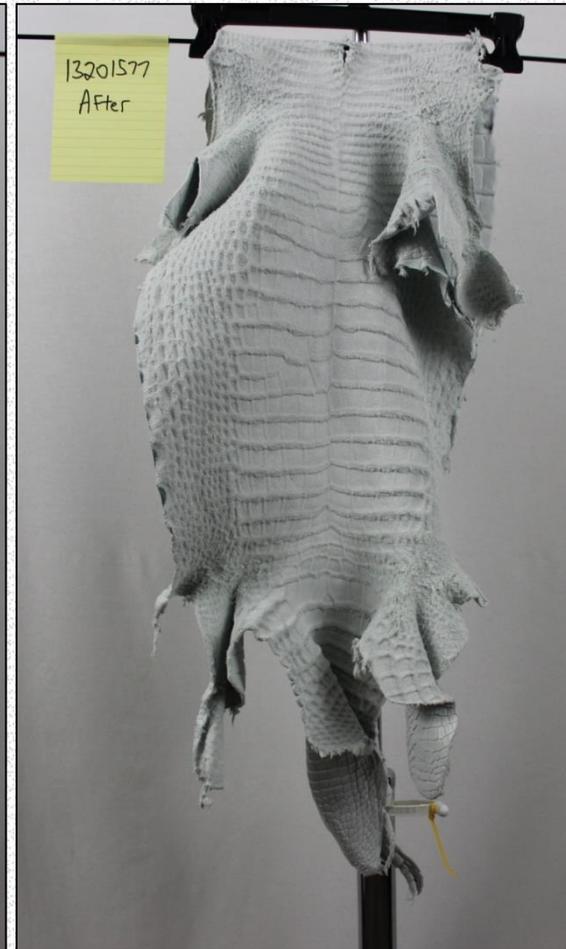
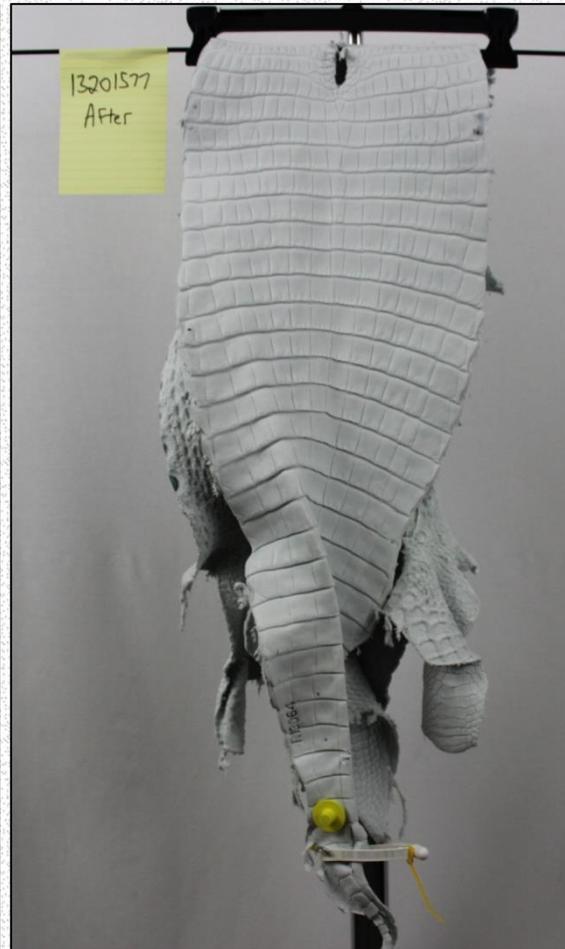
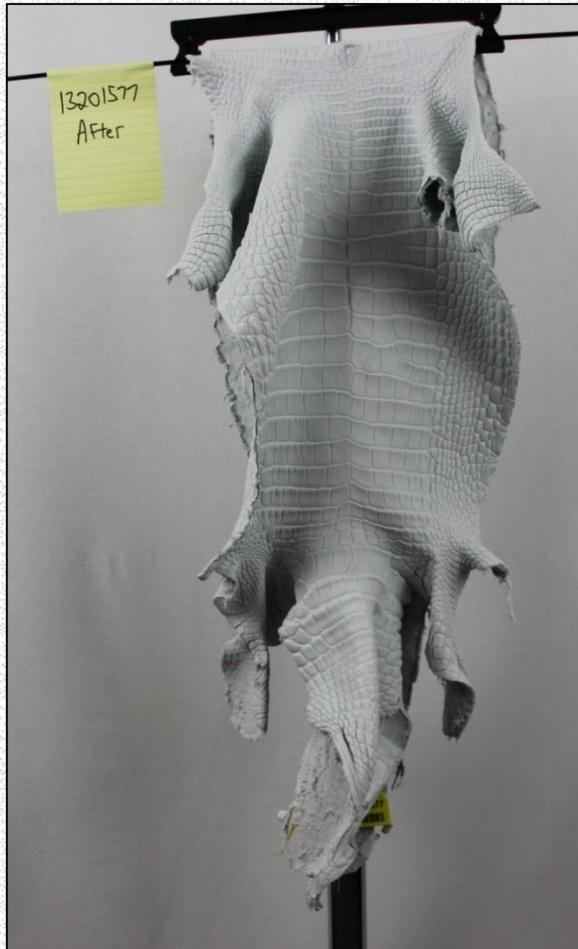
Delhi, India



Rugby, England



Kansas City, MO





GREENEARTH[®]
CLEANING

**Many of the UK's leading retailers
have embraced the future of dry
cleaning - GreenEarth[®]**

- ASOS
- Burberry
- French Connection
- Karen Millen
- LK Bennett
- Miss Selfridge
- Next
- Oliveira Textiles
- Wallis
- White Company

Keep your clothes looking and feeling
new for longer with kinder cleaning

For more information about Johnsons GreenEarth visit:
www.johnsonscleaners.com/cleaning-greenearth



Corporate Responsibility

Our Commitment To Betterment

Making the world a better place starts with the way we work. At Green Earth, we're committed to being a responsible corporate citizen. We're committed to the people we work for, the communities we live in, and the planet we call home. We're committed to being a better company, a better employer, and a better neighbor. We're committed to being a better person.

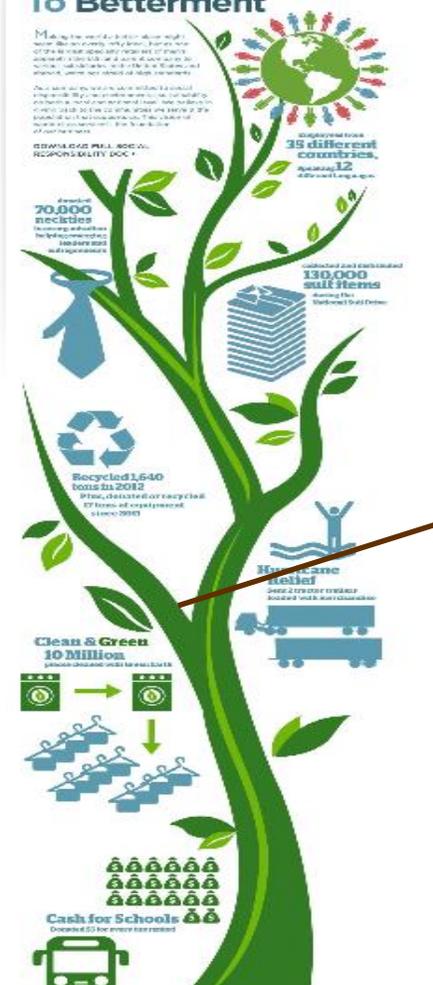
70,000 recycles
Recycling is one of the best ways to reduce our carbon footprint and conserve resources.

130,000 suit items
Donated and distributed through The Salvation Army.

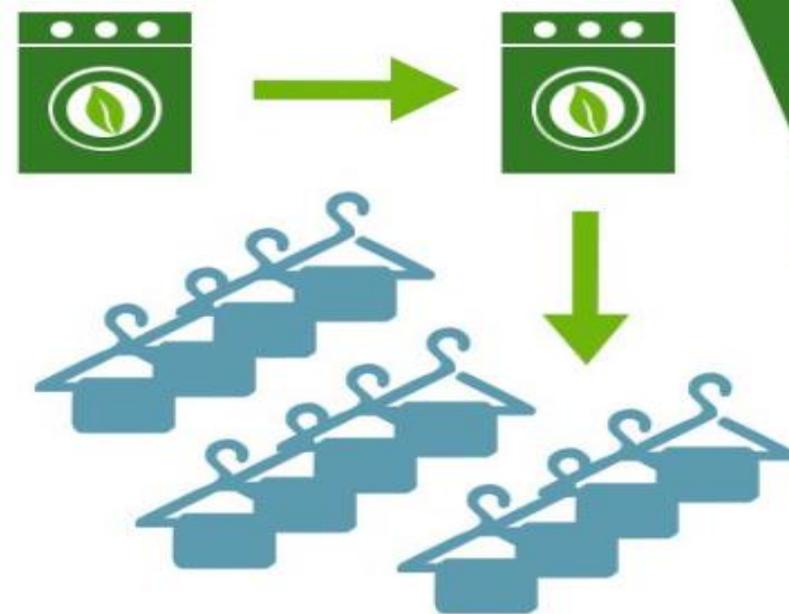
Recycled 1,640 tons in 2012
Paper, plastic and recycled 17 tons of equipment since 2009.

Clean & Green 10 Million
Pieces cleaned with Green Earth.

Cash for Schools
Donated \$1.5 million to support education.

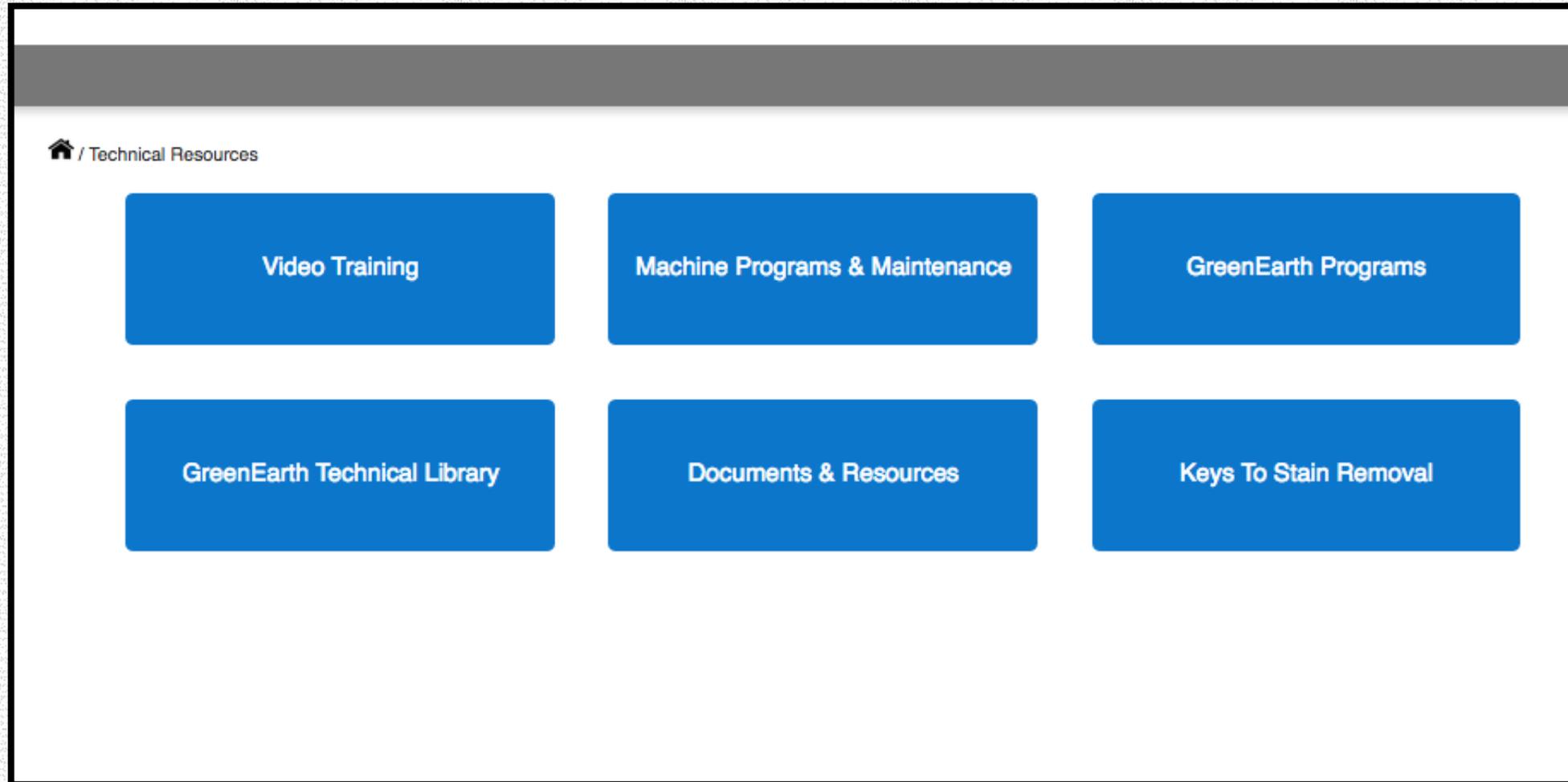


Clean & Green 10 Million pieces cleaned with Green Earth





Technical Resources





The most sustainable way to dry clean.